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TITLE: Trench isolation method using sige
epitaxial layer

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ABSTRACTED-PUB-NO: KR2001009810A

BASIC-ABSTRACT:

NOVELTY - A trench isolation method using a silicon-germanium epitaxial layer is provided to prevent the creation of interstitial silicon atoms in a silicon substrate around the trench.

DETAILED DESCRIPTION - After a pad oxide layer(12) is formed on a silicon substrate(10), a mask pattern(14) is formed thereon to define a trench region. The substrate(10) is then etched to some depth through the mask pattern(14) to

form a trench. Thereafter, a silicon-germanium layer(30') is formed in the trench and on the mask pattern(14) by epitaxial growth. In addition, a sidewall oxide layer(34) of silicon oxide is formed on the silicon-germanium layer(30') by thermal oxidation. Here, while the original silicon-germanium layer(31) is thinner, another silicon-germanium layer(32) having a low silicon content is formed between the original silicon-germanium layer(31) and the silicon oxide layer(34). Therefore, interstitial silicon atoms can be hardly created in the substrate(10) around the trench.

CHOSEN-DRAWING: Dwg.1/10

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